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Exploring the Lived-in Experiences of Adolescents School going girls with Anemia: A Qualitative Study

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Abstract Anemia continues to be a major public health challenge worldwide, particularly among adolescent girls who are biologically and socio-culturally vulnerable during their developmental years. In India, the prevalence remains critically high, affecting not only physical health but also emotional well-being, cognitive functioning and academic performance. This qualitative study aimed to explore the lived-in experiences of adolescent girls diagnosed with anemia who underwent a structured 12 week multi-intervention program. The program included nutritional support, cognitive training and health education designed to enhance awareness and promote self-care practices. Adopting a phenomenological design, in-depth interviews were conducted with 15 adolescent girls aged 12 to 18 years from government schools in the Raigarh district of Chhattisgarh. Participants were selected through purposive sampling and had been clinically diagnosed with mild to moderate anemia (hemoglobin levels between 7.0 and 11.9 g/dL). Interviews, lasting between 30 to 45 minutes, were conducted in a private setting to ensure confidentiality and comfort. Audio recordings were transcribed verbatim and analyzed thematically using Braun and Clarke's six-phase framework. Analysis of the narratives revealed six interconnected themes: functional limitations, physiological burnout, cognitive symptom clusters, academic impairments, social stigma and self-directed care. These themes reflected the interconnected challenges faced by the participants and highlighted both the debilitating impact of anemia and their evolving resilience. This study emphasizes the significance of understanding anemia not merely as a clinical condition but as a deeply personal and complex experience that shapes various domains of adolescent life. Beyond general observations, qualitative inquiry uncovers the nuanced emotional, social and psychological impacts often overlooked in routine health assessments. The insights gained underscore the need for adolescent-centered, integrative health strategies that address the lived realities of anemia, particularly in resource-constrained settings.

Key Words Anemia, Adolescents, Lived-In Experiences, Phenomenology, Qualitative Research, Fatigue, Social Impact, Cognitive Symptoms, Dietary Interventions

INTRODUCTION

Adolescence is a critical developmental stage characterized by rapid physical, cognitive and psychosocial growth. However, this period is often marred by the high prevalence of anemia, especially adolescents due to factors such as menstruation, nutritional deficiencies and inadequate health education. Anemia in adolescence not only affects physical health but also disrupts cognitive function, emotional well-being, academic performance and social integration [1].

While various public health interventions exist, including the Anemia Mukt Bharat campaign and school-based iron supplementation programs [2] there remains a dearth of understanding of how adolescents personally experience this condition, especially after undergoing multi-component interventions. The lived experiences of these individuals provide critical insight into the real-world challenges and coping strategies that are not always captured through quantitative assessments [3].

The present qualitative study aims to explore the lived-in experiences of adolescent girls diagnosed with anemia. Using a phenomenological approach grounded in rich narrative exploration, this study aims to reveal the complex

and nuanced ways in which anemia affects multiple aspects of adolescents' lives-including their physiological health, psychological state, cognitive function, academic performance and social interactions. By centering participants' authentic voices and verbatim accounts, the research intends to generate a deeper understanding of their subjective realities and adaptive responses in order to inform the development of comprehensive, adolescent-centered health interventions that address not only the clinical but also the cognitive, emotional and social dimensions of the condition. This exploration adds meaningful insight to the limited body of research on adolescent health and offers context-specific evidence to inform the design of more holistic and adolescent-responsive care frameworks.

MATERIALS AND METHODS

Study Design: This qualitative study employed a phenomenological approach to understand the lived experiences of adolescent girls diagnosed with anemia [4]. The study was embedded within a broader mixed-method research framework, wherein the qualitative component was specifically designed to explore the lived-in experiences of adolescent girls diagnosed with anemia.

Setting and Participants: The study was conducted in selected government schools of Raigarh district of Chhattisgarh, over a 12 week intervention period. Participants were randomly selected from the broader study population of adolescents diagnosed with anemia who met the inclusion criteria, ensuring a representative sample for exploring their lived-in experiences within the local educational and community context.

Sampling and Recruitment: Purposive sampling was used to select 15 adolescent girls aged 12 to 18 years, diagnosed with mild to moderate anemia (Hb level between 7.0 and 11.9 g/dL) [5]. Inclusion criteria included willingness to participate, parental consent and consistent attendance during study period.

Data Collection: Data were collected after obtaining written informed consent from both the participants and their guardians. Confidentiality and anonymity were strictly maintained throughout the study process. With the help of validated semi-structured interview guide, interviews were conducted prior to any intervention to capture the participants' baseline lived-in experiences.

Prior to intervention. Each interview lasted approximately 30-45 minutes, was audio-recorded with prior permission and later transcribed verbatim.

Data collection followed an iterative process, with ongoing analysis to monitor the emergence of new codes and themes. By the 12th interview, major themes had begun to stabilize, with minimal novel information arising. Interviews 13 to 15 confirmed the saturation of themes, as no new insights emerged and existing codes achieved both breadth (covering a range of experiences) and depth (rich narrative detail). Thus, data saturation was considered achieved with 15 participants. This process aligns with established qualitative research standards, where adequacy is determined by richness and saturation rather than statistical sample size.

Ethical Considerations: Ethical approval for the study was obtained from the Institutional Ethics Committee of Saveetha University of Medical and Technical Sciences, Chennai. Prior subject information and approved written consent form was secured from all participants and their guardians prior to data collection. Throughout the research process, strict measures were taken to ensure participant confidentiality and maintain anonymity.

Data Analysis: Thematic analysis was conducted using Braun and Clarke's six-step framework [6]. Transcripts were coded and categorized into themes and subthemes through an iterative process. "This involved direct engagement of study participants in reviewing and confirming the accuracy of the data and interpretations made by the researcher.

RESULTS

Thematic analysis revealed six major themes that encapsulate participants' verbatim accounts, offering authentic insight into their lived-in experiences.

Theme 1: Functional Limitations: This theme captures the profound impact of anemia on participants' physical capabilities and self-perception. Many adolescents reported a noticeable decline in stamina, reduced participation in daily activities and emotional distress due to physical constraints.

Subtheme 1.1: Physical Exhaustion: Participants described persistent fatigue, difficulty climbing stairs and reduced endurance in physical activities:

- "I get short of breath just walking from one class to another. It makes me late sometimes and I feel embarrassed"
- "Carrying my school bag up the stairs is really difficult because I feel so weak. Sometimes I have to ask my friends for help"

Subtheme 1.2: Low Self-Esteem: Adolescents expressed frustration and embarrassment about their physical limitations:

- "I feel really self-conscious about my condition, especially when I have to explain to people why I can't do certain things"
- "It's frustrating because I want to be active and do everything my friends do but my body just won't let me"

Subtheme 1.3: Reduced Physical Activity: Responses revealed withdrawal from sports and group activities due to weakness:

- "Since being diagnosed with anemia, I've had to significantly reduce my physical activities. I used to enjoy running and hiking but now even walking for long periods leaves me exhausted"

Theme 2: Physiological Burnout: Participants described a pervasive sense of bodily depletion, with symptoms extending beyond fatigue to affect daily functioning, emotional balance and quality of life.

Subtheme 2.1: Fatigue and Exhaustion: Adolescents experienced unrelenting tiredness, often unrelieved by rest or sleep, which affected daily productivity and motivation:

- "No matter how much sleep I get, I wake up feeling exhausted. Simple tasks like getting dressed or making breakfast now feel like monumental efforts"

Subtheme 2.2: Weakness and Dizzines: Feelings of physical frailty and light-headedness were common, often limiting movement and causing fear of fainting:

- "Even minor activities like standing up or walking short distances leave me feeling dizzy and weak-I always have to be cautious when moving around"

Subtheme 2.3: Shortness of Breath: Participants reported breathlessness even with minimal exertion, which hindered participation in routine tasks:

- "Climbing a few stairs or walking a short distance leaves me gasping for air-it's frustrating and frightening at the same time"

Subtheme 2.4: Pale Skin and Cold Extremities: Physiological changes such as pallor and cold hands and feet affected comfort and body image:

- "My hands and feet are always icy and people often ask if I'm feeling okay-it's not just discomfort, it's a constant reminder that I'm unwell"

Subtheme 2.5: Sleep Disturbances: Many reported either oversleeping or frequent nighttime awakenings, leading to unrefreshing rest:

- "I often wake up more tired than when I went to bed-the lack of good sleep makes managing daily life even harder"

Theme 3: Cognitive Symptom Clusters: Participants commonly experienced mental fatigue and emotional instability, which affected academic performance, social interactions and self-worth.

Subtheme 3.1: Difficulty Concentrating*:* Mental fog, forgetfulness and reduced attention span interfered with routine tasks and academic/work productivity:

- "Anemia has made concentrating a real challenge. I zone out in class." "I used to enjoy studying but now I forget things all the time"

Subtheme 3.2: Impact on Mood and Mental Health: Participants reported irritability, sadness, social withdrawal and decreased motivation as persistent emotional challenges:

- "Living with anemia has significantly impacted my mood and mental health. The constant fatigue often leaves me feeling irritable and down"

Theme 4: Academic Impairments: Anemia adversely affected academic engagement, motivation and cognitive processing, resulting in a cycle of underperformance, reduced participation and emotional distress related to academic life.

Subtheme 4.1: Decreased Productivity and Focus: Participants described fatigue-induced mental fog that limited attention span and productivity during classes:

- "It's really tough to stay focused in class when I constantly feel tired and drained, even after a full night's sleep. I want to pay attention but sometimes I feel like my brain just isn't working right"

Subtheme 4.2: Struggles with Academic Motivation: Ongoing exhaustion and missed learning opportunities led to diminished enthusiasm for studies and school participation

- "Anemia has affected my academic performance significantly. The constant fatigue means that by the time I get home from school, I'm too exhausted to study or do homework"

Subtheme 4.3: Underperformance: Cognitive limitations and physical discomfort resulted in academic underachievement and reduced confidence:

- "Anemia has had a major impact on my ability to stay focused and attentive in school. I often feel lightheaded and dizzy, which makes it hard to concentrate during lessons"

Subtheme 4.4: Difficulty in Memorization: Participants experienced forgetfulness, exam anxiety and a sense of inadequacy due to poor memory retention:

- "I struggle with remembering things, especially during exams. My anemia makes it hard to retain information, no matter how much I study"

Theme 5: Social Stigma: Adolescent girls with anemia often experienced social withdrawal and emotional burden stemming from their physical limitations Because of the stigma they experienced, the girls felt left out and found it difficult to share their health issues (Figure 1).

Subtheme: 5.1: Social Isolation and Exclusion: Missed social experiences and feelings of being left out contributed to emotional detachment:

- "It's hard to keep up with my friends when I'm always feeling tired and need to rest more often. I miss out on social events and activities and it feels like I'm drifting away from everyone"

Subtheme 5.2: Difficulty Explaining Health Limitations: Fear of being misunderstood or judged kept participants silent about their condition:

- "I often have to miss out on after-school hangouts or events because I'm feeling unwell. It's hard to explain to friends why I can't always be there and I fear they might think I'm avoiding them"

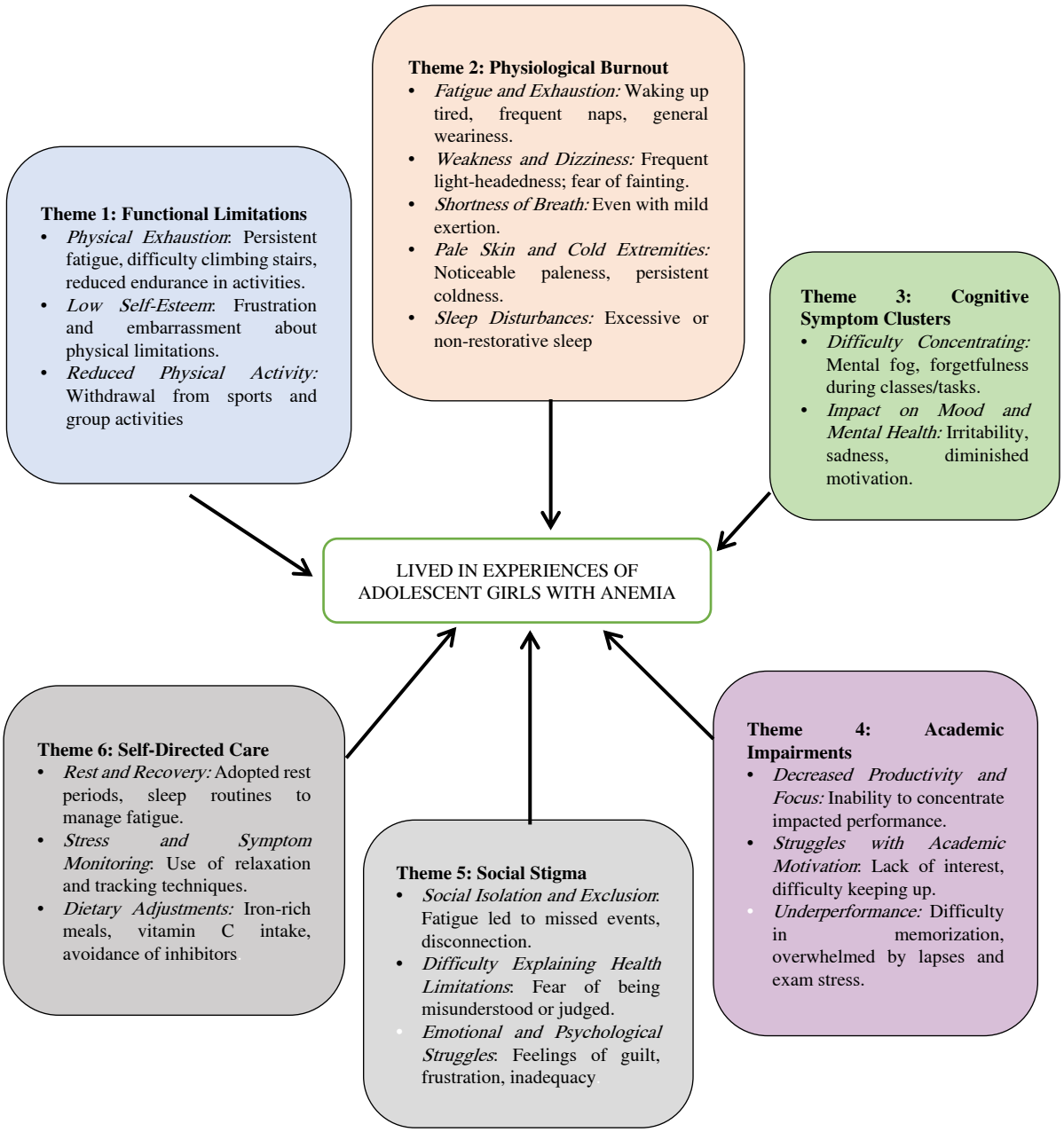
Theme 1: Functional Limitations
Physical Exhaustion: Persistent fatigue, difficulty climbing stairs, reduced endurance in activities.
Low Self-Esteem: Frustration and embarrassment about physical limitations.
Reduced Physical Activity: Withdrawal from sports and group activities
Theme 2: Physiological Burnout
Fatigue and Exhaustion: Waking up tired, frequent naps, general weariness.
Weakness and Dizziness: Frequent light-headedness; fear of fainting.
Shortness of Breath: Even with mild exertion.
Pale Skin and Cold Extremities: Noticeable paleness, persistent coldness.
Sleep Disturbances: Excessive or non-restorative sleep
Theme 3: Cognitive Symptom Clusters
Difficulty Concentrating: Mental fog, forgetfulness during classes/tasks.
Impact on Mood and Mental Health: Irritability, sadness, diminished motivation.
LIVED IN EXPERIENCES OF ADOLESCENT GIRLS WITH ANEMIA
Theme 6: Self-Directed Care
Rest and Recovery: Adopted rest periods, sleep routines to manage fatigue.
Stress and Symptom Monitoring: Use of relaxation and tracking techniques.
Dietary Adjustments: Iron-rich meals, vitamin C intake, avoidance of inhibitors
Theme 5: Social Stigma
Social Isolation and Exclusion: Fatigue led to missed events, disconnection.
Difficulty Explaining Health Limitations: Fear of being misunderstood or judged.
Emotional and Psychological Struggles: Feelings of guilt, frustration, inadequacy
Theme 4: Academic Impairments
Decreased Productivity and Focus: Inability to concentrate impacted performance.
Struggles with Academic Motivation: Lack of interest, difficulty keeping up.
Underperformance: Difficulty in memorization, overwhelmed by lapses and exam stress.

Figure 1: Interpretation of the Lived Experiences of Adolescent Anemia
This figure illustrates six major thematic areas derived from the qualitative data, highlighting how adolescent girls with anemia experience physical, cognitive, emotional, social, academic and self-management challenges

Subtheme 5.3: Emotional and Psychological Struggles: Participants expressed guilt, frustration and a sense of inadequacy in social settings:

- "I struggle with feeling like an outsider when I'm not as involved in social circles or school events. My anemia makes it hard to maintain the same level of participation as my peers"

Theme 6: Self-Directed Care: Participants used their own ways to manage anemia symptoms by adjusting their daily routines, getting more rest and improving their diet to cope with the physical and mental challenges they faced.

Subtheme 6.1: Rest and Recovery: Balancing exertion with intentional rest helped conserve energy and sustain daily functioning:

- "I've learned to listen to my body and take breaks when I need them. If I'm feeling too tired, I step outside for fresh air or take a short nap if I can"

Subtheme 6.2: Stress and Symptom Monitoring: Participants practiced mindfulness and made simple adjustments to their daily routines to manage stress and cope with their condition:

- "I schedule short breaks during my study sessions to rest and recharge, ensuring I don't overextend myself and exacerbate my symptoms"

Subtheme 6.3: Dietary Adjustments: Awareness about nutrition helped participants make better food choices, which improved their iron intake and helped manage symptoms:

- "I make sure to combine iron-rich foods with vitamin C sources, such as oranges or bell peppers, to enhance iron absorption and improve my energy"

DISCUSSION

This study provides a voice to adolescents with anemia, whose verbatim narratives portray a profound struggle with both physical and psychological consequences. Fatigue emerged as the most pervasive symptom, disrupting school, friendships and self-image. The lived-in experiences of anemic adolescent girls revealed profound challenges in navigating academic and social life at school. Participants consistently reported fatigue, cognitive fog and lack of motivation, which negatively impacted classroom participation and academic performance. These findings resonate with a qualitative study by Bentley and Griffiths, which explored the experiences of adolescent schoolgirls in India living with anemia. Using in-depth interviews, the study captured narratives from approximately 30 girls, revealing not only physical exhaustion but also feelings of embarrassment. These emotional responses often led to school absenteeism and social withdrawal, impacting academic engagement [7].

Similarly, a mixed-method study conducted in Ghana examined the effects of anemia on adolescent girls' cognitive and emotional functioning. This study involved both survey assessments and interviews with over 200 participants aged 10-19 years. It revealed that anemia was strongly associated with difficulties in concentration and memory, as well as symptoms of emotional distress such as irritability and low mood. These challenges created a cycle of poor academic performance and reduced self-esteem [8].

Social stigma emerged as a key theme in this study, with many girls expressing fear of judgment and exclusion due to anemia-related symptoms such as fatigue and pallor. This often led to social withdrawal and reluctance to share their health concerns. These findings align with a qualitative study by Nagata *et al.* [9], which involved interviews with around 20 adolescents aged 13-18 years diagnosed with chronic fatigue syndrome. Participants in that study reported feeling misunderstood by peers and adults, frequently labeled as lazy or unmotivated. As a result, they experienced shame, isolation and a decline in self-esteem, often avoiding social interaction to escape negative attention. Similar patterns in the current study highlight the broader psychosocial impact of chronic conditions and reinforce the need for school-based awareness programs to reduce stigma and foster supportive environments for affected adolescents [9].

Beyond adolescence, the cognitive impact of iron deficiency persists. Palacios *et al.* [13] examined Spanish university students and found that lower iron intake and serum ferritin levels correlated with diminished IQ, working memory and processing speed, particularly among females. These findings suggest that the cognitive clusters experienced by our participants could have long-term academic and occupational consequences if anemia remains unaddressed [10].

Social stigma was another major theme in this study. Many girls expressed fears of being judged or excluded due to fatigue and pallor, leading to withdrawal and silence. This is consistent with Nagata *et al.* [9], who found adolescents with chronic fatigue syndrome often felt misunderstood and labeled as lazy, resulting in shame, social withdrawal and lowered self-esteem. Similar stigma-related barriers to disclosure and care-seeking have been reported in Indian qualitative studies, where adolescents avoid talking about anemia due to embarrassment or fear of peer judgment [11].

At the policy level, the experiences narrated here expose the gaps in large-scale interventions such as Anemia Mukt Bharat (AMB) and Weekly Iron and Folic Acid Supplementation (WIFS). While these programs emphasize supplementation, deworming and nutrition, several studies

highlight gaps in adherence due to side effects, irregular supply and lack of counseling. For instance, Dadarwal *et al.* [12] reported that even where WIFS programs were available, adolescent girls' adherence was inconsistent because of forgetfulness, gastrointestinal discomfort or poor motivation. Our participants echoed similar struggles in self-directed care and dietary adjustments, indicating that structural support is required for better compliance.

Taken together, these findings highlight that anemia among adolescent girls is not just a hematological diagnosis but a multidimensional lived experience. Fatigue, cognitive strain, social stigma and emotional burden intertwine to create a complex challenge that can undermine educational attainment and psychosocial development. Our study aligns with international evidence that emphasizes the need for adolescent-centered care models-ones that address both biomedical and psychosocial realities, incorporate school-based screening and education and provide accessible counseling and peer support mechanisms.

Dietary self-care and attempts to maintain academic balance despite physical limitations demonstrated resilience, though many struggled silently without institutional support. These lived experiences underscore the urgent need for school-based screening, psycho-social support and health education initiatives tailored to adolescent girls. Reflecting these insights, participants in the current study also expressed fears of being perceived as weak or incapable, which often prevented them from disclosing their condition or seeking support. Such parallels across diverse cultural and clinical settings highlight the significant psychosocial impact of chronic illnesses like anemia during adolescence. These findings underscore the urgent need for school-based awareness initiatives to combat stigma and encourage empathy and peer support for students facing invisible health challenges. Recognizing and addressing these lived experiences can enable educators and policymakers to create supportive environments that respond not only to the medical aspects of anemia but also to its emotional, social and academic implications.

Recommendations and Projected Outcomes

Anemia affects adolescent girls in diverse ways, highlighting the need for holistic strategies that go beyond medical treatment to include social and emotional support."

To begin with, schools should adopt routine hemoglobin screenings to identify anemia early and initiate timely support. This can be complemented by age-appropriate health education sessions focusing on nutrition, menstrual health and anemia prevention-empowering girls with the knowledge to care for themselves effectively.

Given the emotional strain and stigma many participants experienced, it is also important to strengthen psycho-social support within educational settings. Establishing school-based counseling and peer support groups can help students manage stress, reduce feelings of isolation and encourage open dialogue about health concerns.

Educators play a vital role and should be sensitized through training programs to recognize subtle signs of distress and respond supportively. Engaging families through community awareness drives can further improve home-based support and help break cultural barriers that hinder care-seeking.

Together, these initiatives could lead to better health outcomes, increased academic participation, improved emotional well-being and greater social inclusion. Over time, they are likely to contribute to more adolescent-friendly school environments that are responsive to both health and learning needs.

CONCLUSIONS

This qualitative study provides a nuanced understanding of how anemia shapes the everyday realities of adolescent girls, extending far beyond its biomedical definition. Their verbatim narratives revealed how fatigue, cognitive difficulties, academic setbacks, social withdrawal and emotional distress are deeply interwoven, profoundly affecting self-image, development and social participation. At the same time, many adolescents demonstrated resilience through self-directed coping strategies such as rest regulation, dietary adjustments and stress management. These insights underscore the importance of creating supportive environments that empower girls with knowledge, skills and confidence to manage their health.

By reaching data saturation at 15 participants, the study achieved thematic depth and methodological rigor, ensuring that findings authentically reflected the lived experiences of this population. The results highlight that anemia cannot be reduced to a laboratory value but must be understood as a multidimensional condition with physical, cognitive, emotional and social dimensions requiring integrative, adolescent-centered care approaches.

At the national level, where India continues to face a disproportionately high prevalence of adolescent anemia, as documented in NFHS-5 (2019-21) and recent analyses [13,14]. Incorporating these lived experiences into school health programs, nutrition schemes and adolescent health policies can make interventions more empathetic, responsive and sustainable. Global reports by WHO and UNICEF further emphasize that adolescent anemia remains a pressing challenge, with more than half of Indian girls aged 15-19 years affected [15,16].

International evidence consistently shows that anemia impairs cognitive performance, memory and academic achievement [17,18], -outcomes our participants vividly described as "mental fog," poor concentration and academic underperformance. By capturing such qualitative depth, this study complements quantitative surveys, translating

statistics into human experiences. These lived realities call for culturally sensitive, gender-responsive models of care that validate emotional struggles alongside biomedical treatment.

Recognizing and acting on these voices is not only essential for strengthening the quality of anemia care but also pivotal for advancing health equity, educational retention and long-term empowerment of adolescent girls [19].

Conflicts of Interest

The authors declare no conflicts of interest and no disagreements regarding the conduct, analysis or reporting of this study. The study was carried out independently and no external funding bodies influenced its design, data collection, interpretation or conclusions.

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